

CLAIMS

1. A bioactive polypeptide, MF3, with a primary structure depicted in SEQ ID NO:1,
an active fragment of MF3, or any functional derivative of MF3, said polypeptide
5 active fragment or functional derivative being capable of effecting a resistance of a
plant against microbial diseases and/or against attack of plant parasites.
2. An isolated DNA sequence depicted in SEQ ID:2, or fragment thereof, encoding a
functionally active MF3 or its active fragment according to claim 1, wherein said
10 DNA fragment may contain degenerate codons.
3. A method of acquiring resistance of a plant against microbes and/or plant parasites
by introducing the bioactive polypeptide MF3 or an active fragment, or a functional
derivative thereof into plants mechanically or by means of carrier molecules.
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4. The method according to claim 3, wherein the carrier is chitosan.
5. A vector comprising the DNA according to claim 2.
- 20 6. The method of generating a transgenic plant or plant cell culture comprising a
vector according to claim 5, wherein the plant cells express the polypeptide encoded
by the DNA.
7. A host cell stably transformed or tranfected with a vector of claim 5.
- 25 8. A plant protectant composition comprising isolated components of claim 1.
9. The active fragment of MF3 according to claim 1, wherein the amino acid
sequence consists of SEQ ID:3 or SEQ ID:4.
- 30 10. A method of isolating and purifying the polypeptide of claim 1 from bacterial
cells expressing said polypeptide, the method comprising the steps:
a) cultivating a microbial producer strain and extracting cells with a buffer solution at
an elevated temperature;

- b) precipitating a crude MF3 polypeptide at low temperature with a precipitant;
- c) fractionating re-dissolved precipitate by an anion exchange chromatography column and collecting fractions with anti-microbial or anti-insect activities;
- d) performing polyacrylamide gel electrophoresis of the polypeptide fractions with
- 5 anti-microbial, anti-nematode, or anti-insect activities;
- e) recovering the protein eluted from the gel of step d.

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